



Aligning science standards: Arkansas and the 2009 National Assessment of Educational Progress (NAEP)



Summary



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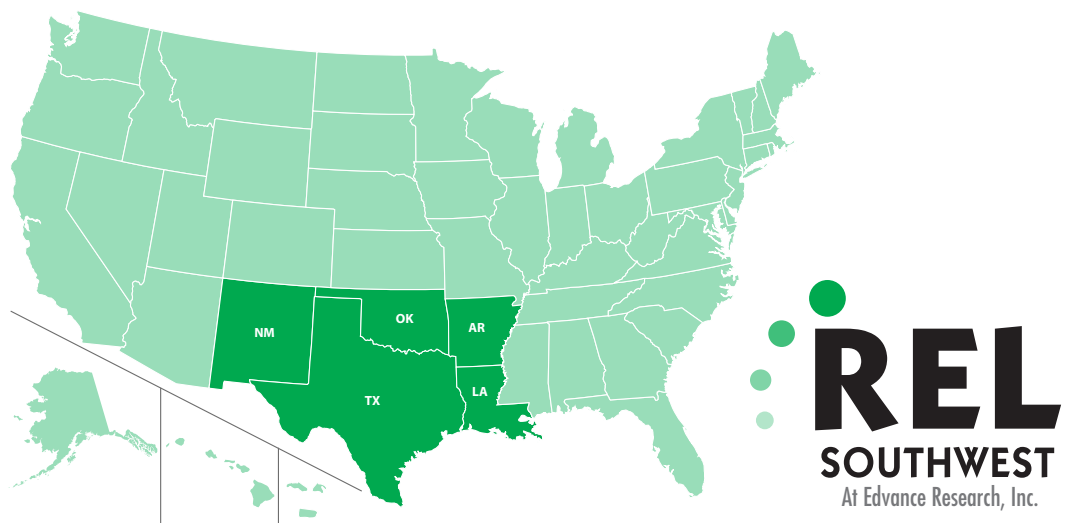
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Summary

Aligning science standards: Arkansas and the 2009 National Assessment of Educational Progress (NAEP)

This policy research document is intended for Arkansas policymakers to use when examining possible changes to the Arkansas state assessment's alignment with the National Assessment of Educational Progress (NAEP). The 2009 NAEP test is not yet in existence, so the purpose of this report is to give policymakers a headstart in determining where they might, if they so decide, begin to make changes in their assessment standards and create test specifications to develop an assessment system more closely aligned with that used for the NAEP.

This report reveals alignment issues between the state's tests and future NAEP tests and may be especially important to those considering revising their science standards and assessments in line with No Child Left Behind requirements for state science tests in elementary, middle, and high schools. Revising assessments requires considerable time and resources, so policymakers must carefully consider their capacity for making changes and the degree to which such changes will benefit students.

The analysis here uses the Arkansas Science Curriculum Frameworks for grades K–8 and for biology. The NAEP is administered to students in grades 4, 8, and 12, but Arkansas

conducts statewide tests in grade 5, grade 7, and biology. Since the Arkansas standards for grade 5, grade 7, and biology were most likely to appear on state assessments, they were used to compare Arkansas standards with the NAEP standards.

This study was designed to compare the NAEP and a corresponding state assessment framework. However, science specialists in Arkansas indicated that their statewide exams draw from the entire set of standards within the Science Curriculum Frameworks and thus this alignment was performed with the NAEP, which is an “assessment framework,” and the Arkansas Science Curriculum Frameworks, which are designed to indicate what science should be taught at various grade levels.

Grade 4 alignment

Nearly all NAEP grade 4 content items are to some degree addressed by the Arkansas science framework, but the Arkansas statements typically are only partially aligned with NAEP statements and often are not found at the Arkansas grade 5 level. Most of the Arkansas grade 5 learning expectations go beyond the content covered by the NAEP. But most NAEP content is partially aligned with Arkansas content at grade levels above and below fifth grade. The overall alignment rating for NAEP

grade 4 standards and grade 5 Arkansas standards was 2.0—partial alignment. (A rating of 1 indicates no alignment, and a rating of 3, full alignment.)

Grade 8 alignment

The majority of NAEP grade 8 content statements are partially aligned with the content found within the Arkansas Science Curriculum Framework. Most statements were given ratings of 2 because NAEP standards typically contain more detail than the corresponding Arkansas standards. More than half of Arkansas grade 7 science standards in the curriculum framework are unaddressed by the NAEP, most likely because the alignment was performed between the NAEP's more specific content areas—designed for use on an assessment—and Arkansas's more wide-ranging content areas—from its curriculum framework. The overall alignment rating when comparing the Arkansas Science Curriculum Framework to NAEP's grade 8 content statements was 2.1—partial alignment.

Grade 12 alignment

Arkansas biology learning expectations are moderately aligned with NAEP's life science standards—all NAEP statements are at least partially addressed by Arkansas standards. Arkansas statements mostly imply the content explicitly stated by the NAEP. The overall alignment rating for NAEP life science was 2.1.

Test specifications

Standards and test specifications are the starting point for developing tests and test items. In the ideal alignment study state science assessments would be directly compared with NAEP assessments at the item level. The NAEP 2009 assessment items may someday be available for such a study. Since the purpose of this report is to allow policymakers to examine their alignment with NAEP before the test is implemented, no further research is suggested.

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